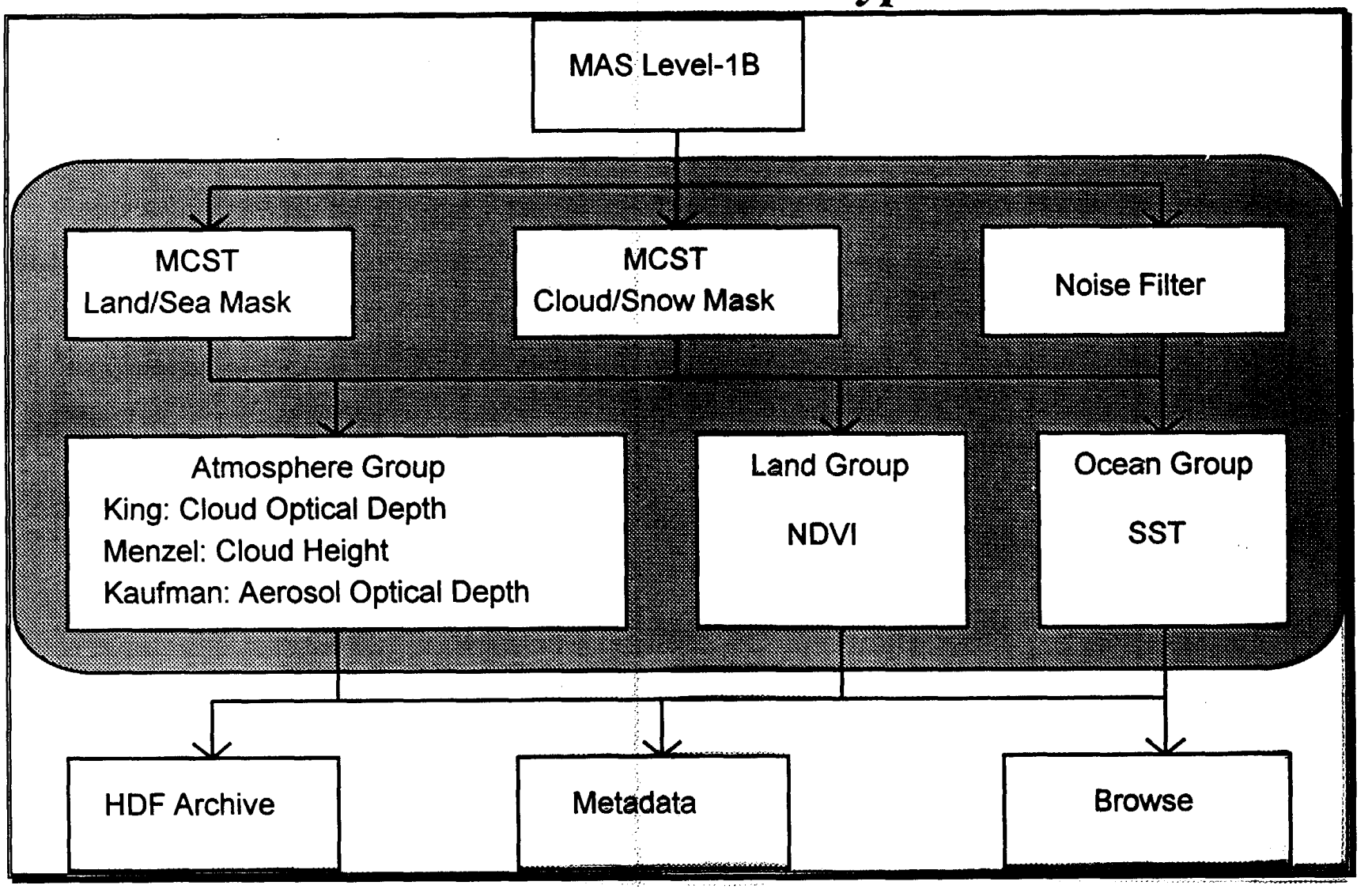
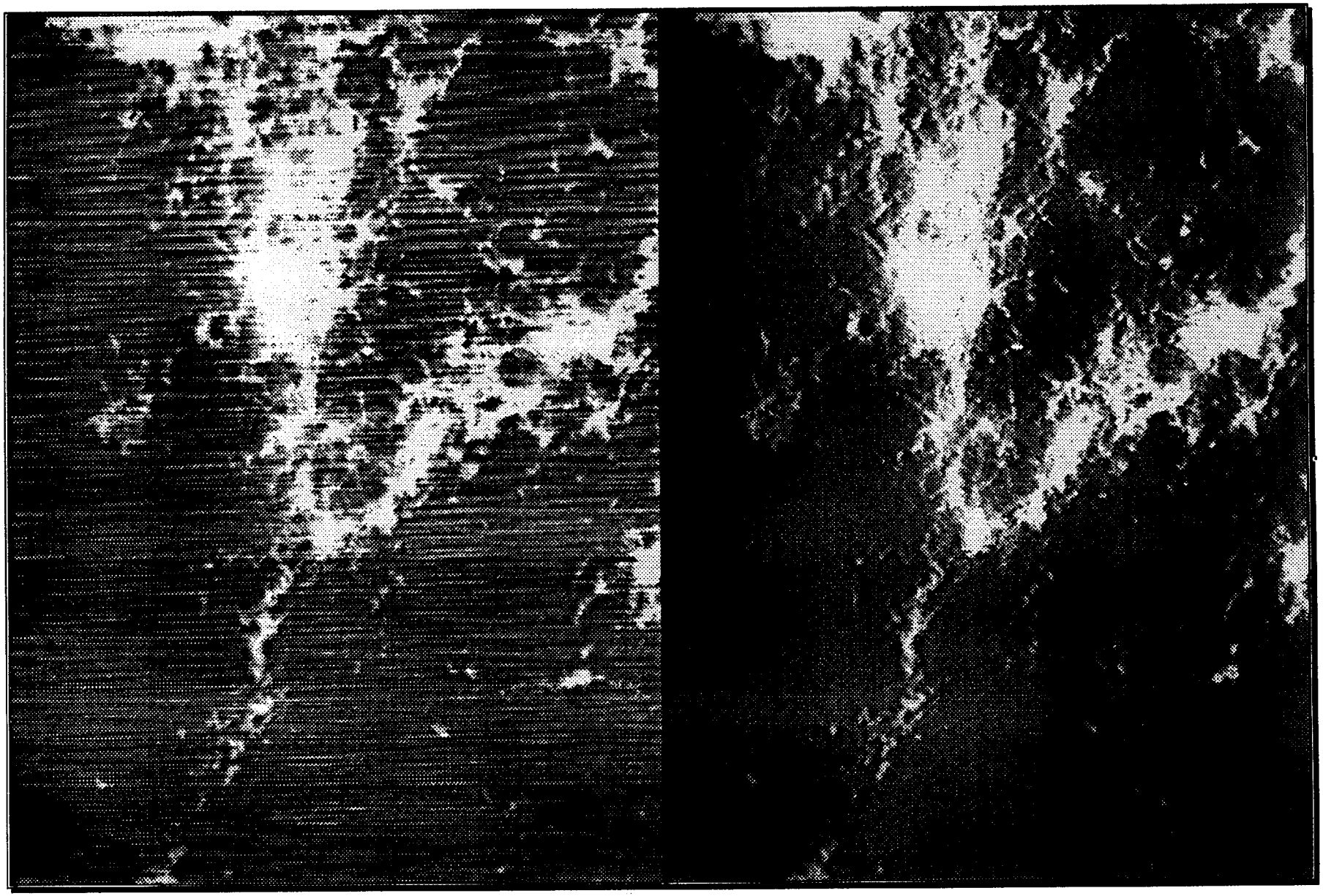
MAS Level-2 Prototype



MAS Noise Filtering



J.J. Pan, Liam Gumley, MODIS Science Data Support Team (SDST)
MODIS Science Team Meeting, October 27-29, 1992

MAS Noise Filtering

- MAS infrared channels contain significant noise:
  400 Hz ER-2 aircraft power
  Incoherent line to line striping
- Two separate algorithms required for noise removal:
  Frequency domain filtering using 2-D FFT
  Adaptive 2-D spatial averaging
- Demonstration image from 8 June 1992 (ASTEX):
  Channel 12 (12.032 μm)
  Cloud scene over ocean
  Unfiltered versus Filtered image
  480 lines, 640 pixels (45 m pixel at nadir)
- Noise is removed leaving cloud features intact:
  Smearing is minimized

J.J. Pan, Liam Gumley, MODIS Science Data Support Team (SDST)
MODIS Science Team Meeting, October 27-29, 1992

MAS Central Wavelengths

Channel	FIRE (11/91)	ASTEX (6/92)	Bit depth
1	—	—	—
2	0.681 μm	0.664 μm	8
3	1.617	0.875	8
4	1.933	0.945	8
5	2.088	1.621	8
6	2.139	2.142	8
7	3.748	3.725	8
8	4.695	13.952	8
9	4.539	8.563	10
10	8.800	11.002	10
11	10.950	13.186	10
12	11.950	12.032	10

TOGA/COARE (1/93) same as ASTEX

Liam Gumley, MODIS Science Data Support Team (SDST)
MODIS Science Team Meeting, October 27-29, 1992